

The Sun and Solar Wind: A Search for the Beginning

Where Did This Come From? Where Does It Fit?

STUDENT ACTIVITY

Model Development Assessment Activity

THREE IMPORTANT QUESTIONS

1. Is there any evidence that heavy elements such as sodium, iron, and magnesium were generated by processes occurring within the interior of the sun?
2. Is it conceivable that these heavy elements are currently being created within the interior of the sun?
3. Is the success of the Standard Solar Model dependent on the presence of these heavy elements?

1. The box above contains three important questions. The reasons that these questions arise are:

- a) In this module it has been demonstrated that heavy atoms are present in the atmosphere of the sun; however, these elements are not mentioned as part of the Standard Solar Model.
- b) In the module, evidence is presented for the presence of a limited number of heavy atoms in the solar wind; however, the origin of these heavy elements is not addressed.

Also keep in mind the fact that the Genesis mission scientists anticipate that isotopes from throughout the periodic table of the elements will be found in the solar wind.

2. As a team, discuss, enlarge, and refine your reasons for answering questions one and two as you did. Conduct on-line or library research as necessary. You may want to divide up the responsibilities for pursuing the various lines of research that your team deems important. These reasons will form the background for your oral presentation (see #4).
3. As a team, develop a model that explains the origin of heavy elements in the sun and the solar wind.
4. Finally, your team will make an illustrated oral presentation of your model for comment and evaluation.
5. Your team should develop an answer to question #3 and make an assessment of the impact the presence of heavy metals might have on the Standard Solar Model. Write your assessment on a piece of paper and hand it in to the teacher.

